

1000

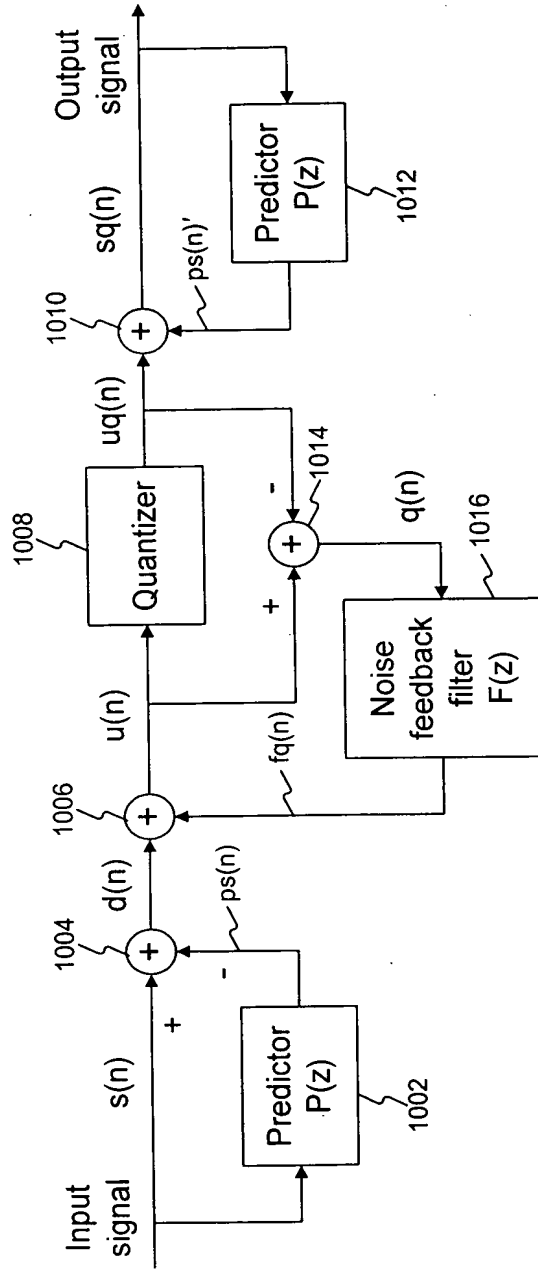


Figure 1 Conventional Noise Feedback Coding

1050

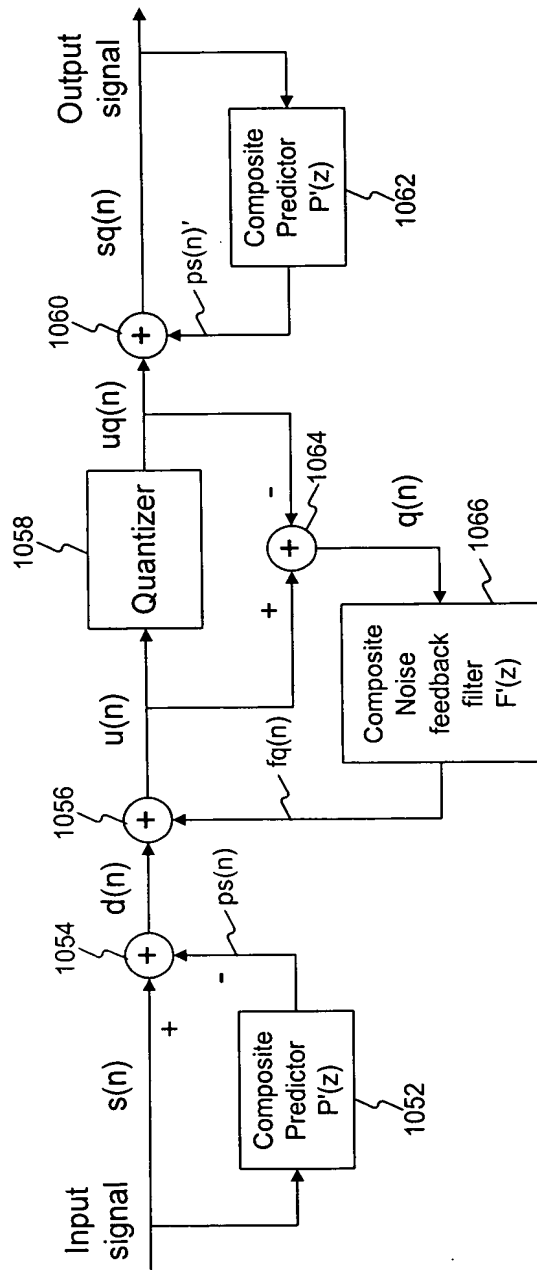


Figure 1A Noise Feedback Coding Using Composite Short-Term and Long-Term Predictors and Composite Short-Term and Long-Term Filter

2000

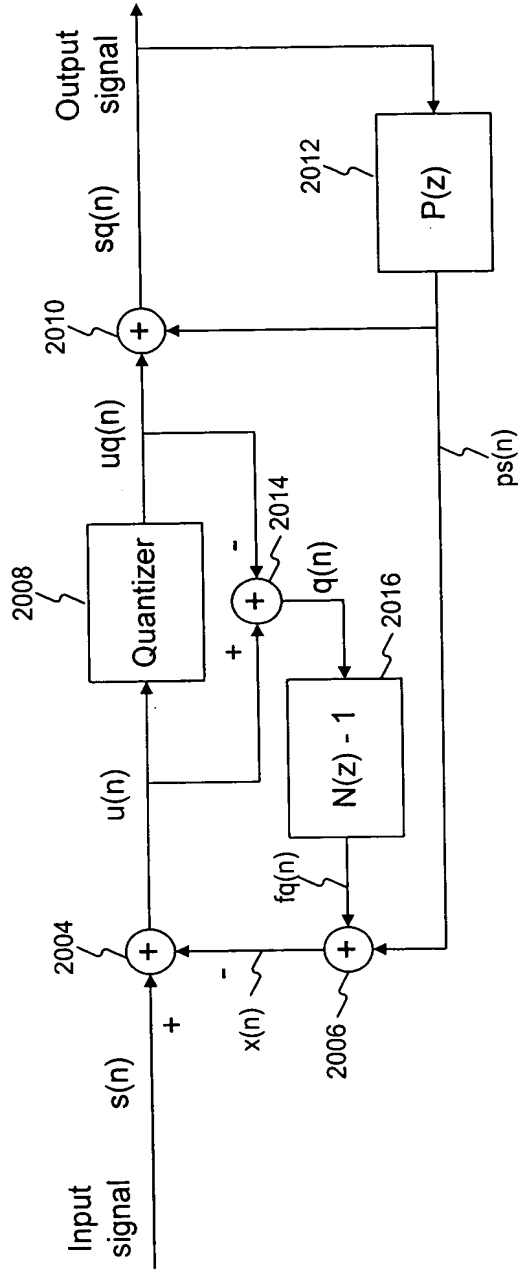


Figure 2 An alternative form of conventional Noise Feedback Coding

2050

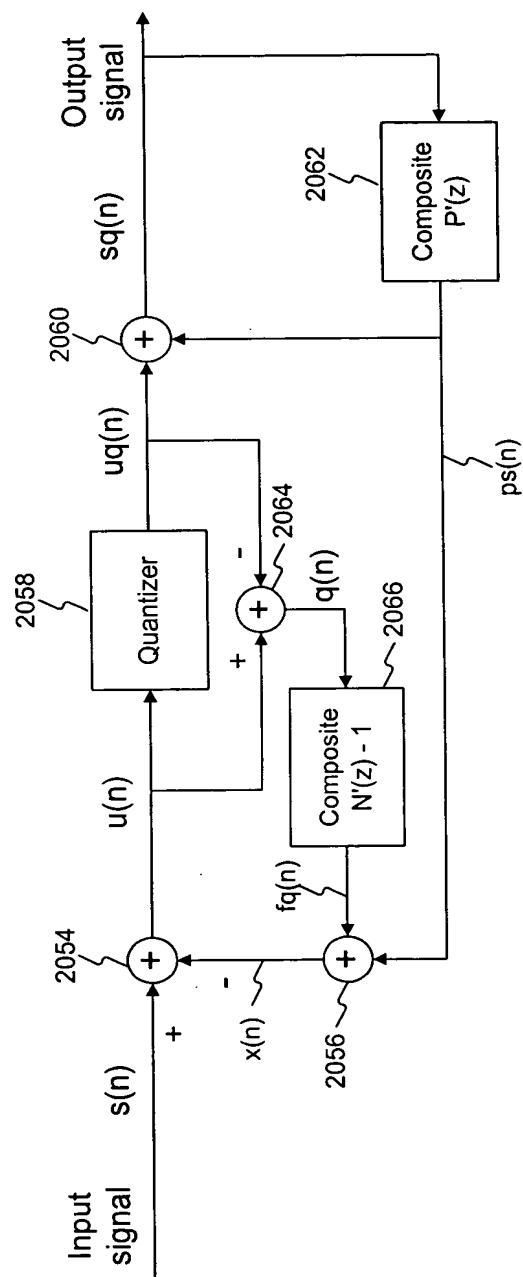


Figure 2A Noise Feedback Coding Using Composite Predictor and Composite Noise Filter

3000

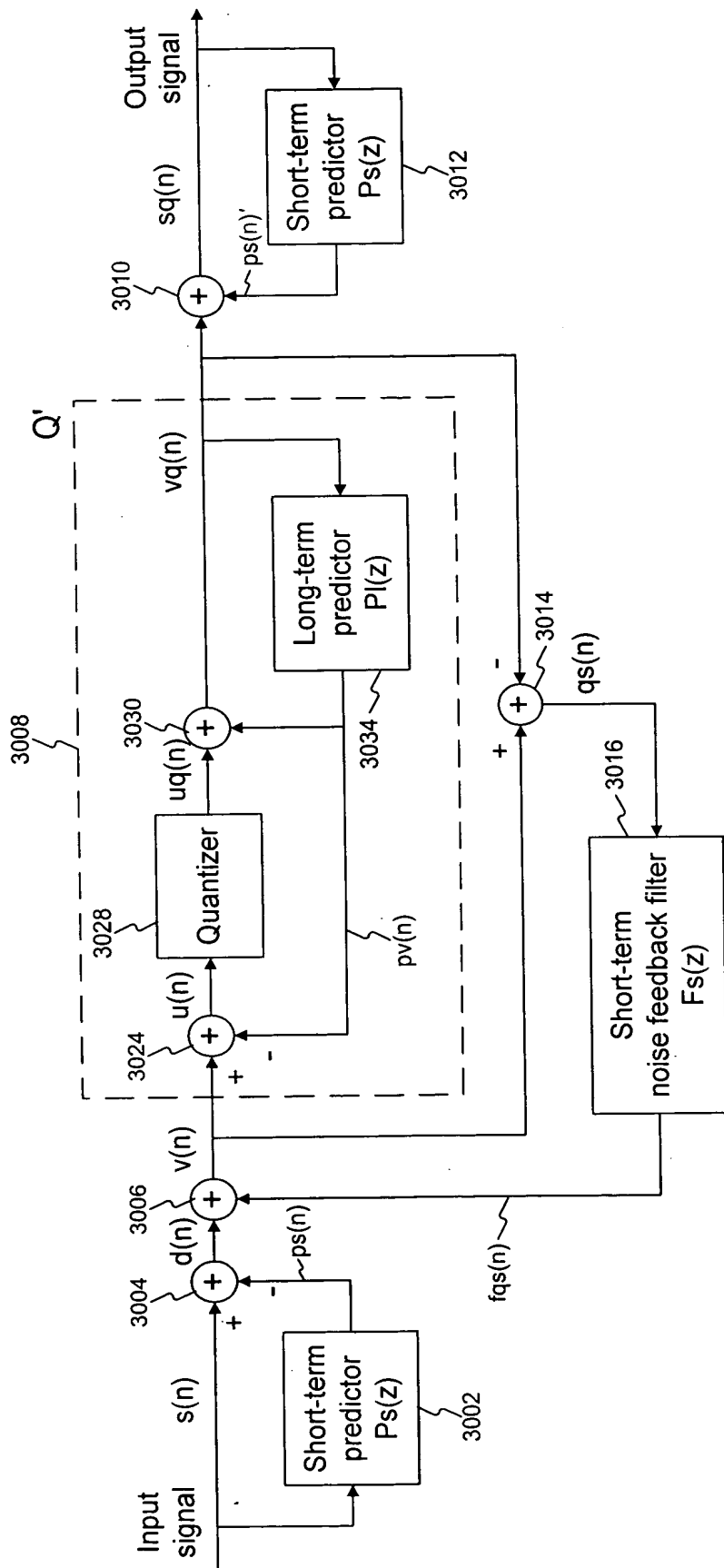


Figure 3 Noise Feedback Coding with short-term and long-term prediction but only short-term noise spectral shaping

4000

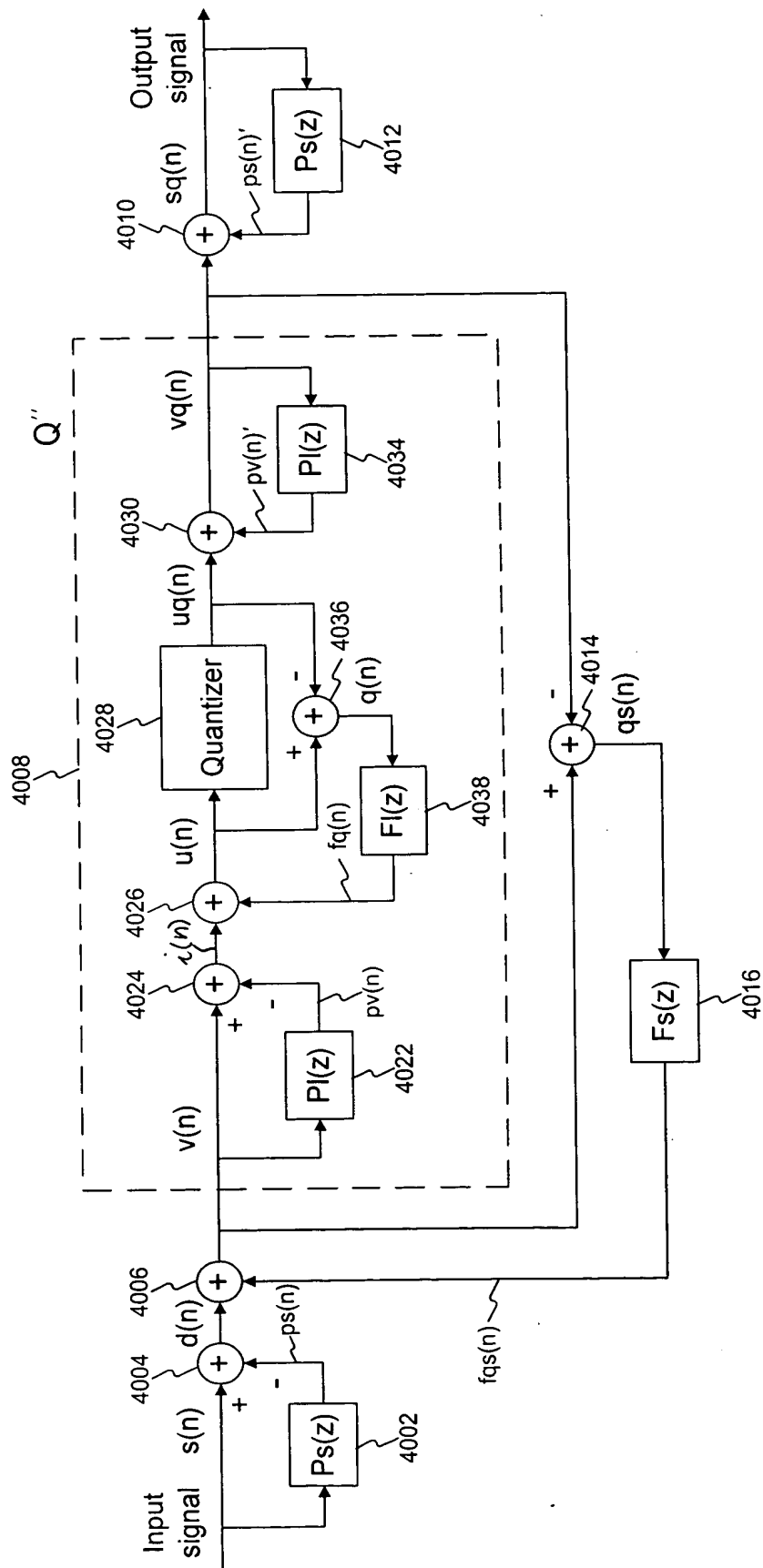


Figure 4 Nested two-stage Noise Feedback Coding structure with short-term and long-term prediction and short-term and long-term noise spectral shaping

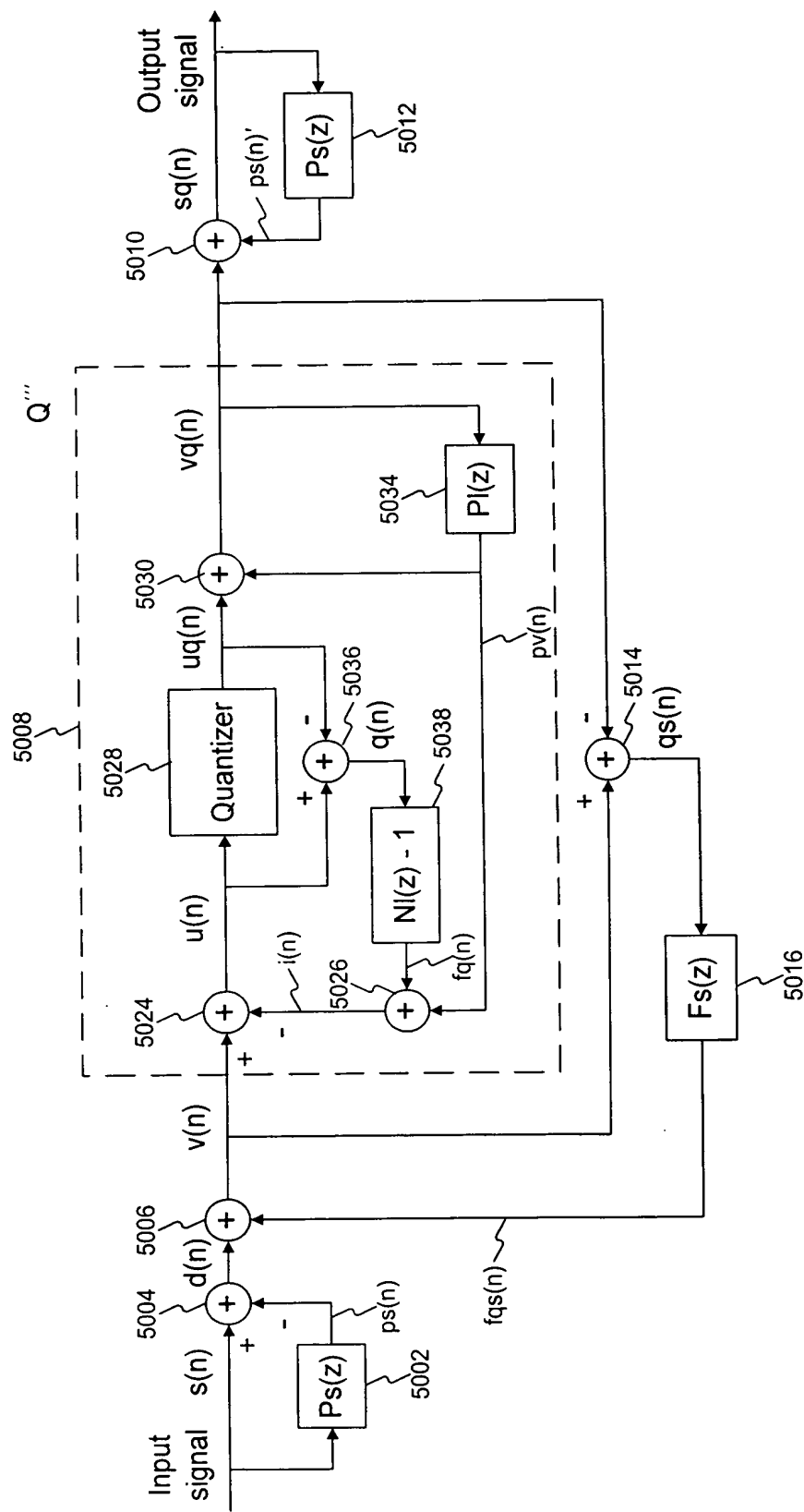


Figure 5 An alternative nested two-stage Noise Feedback Coding structure with short-term and long-term prediction and short-term and long-term noise spectral shaping

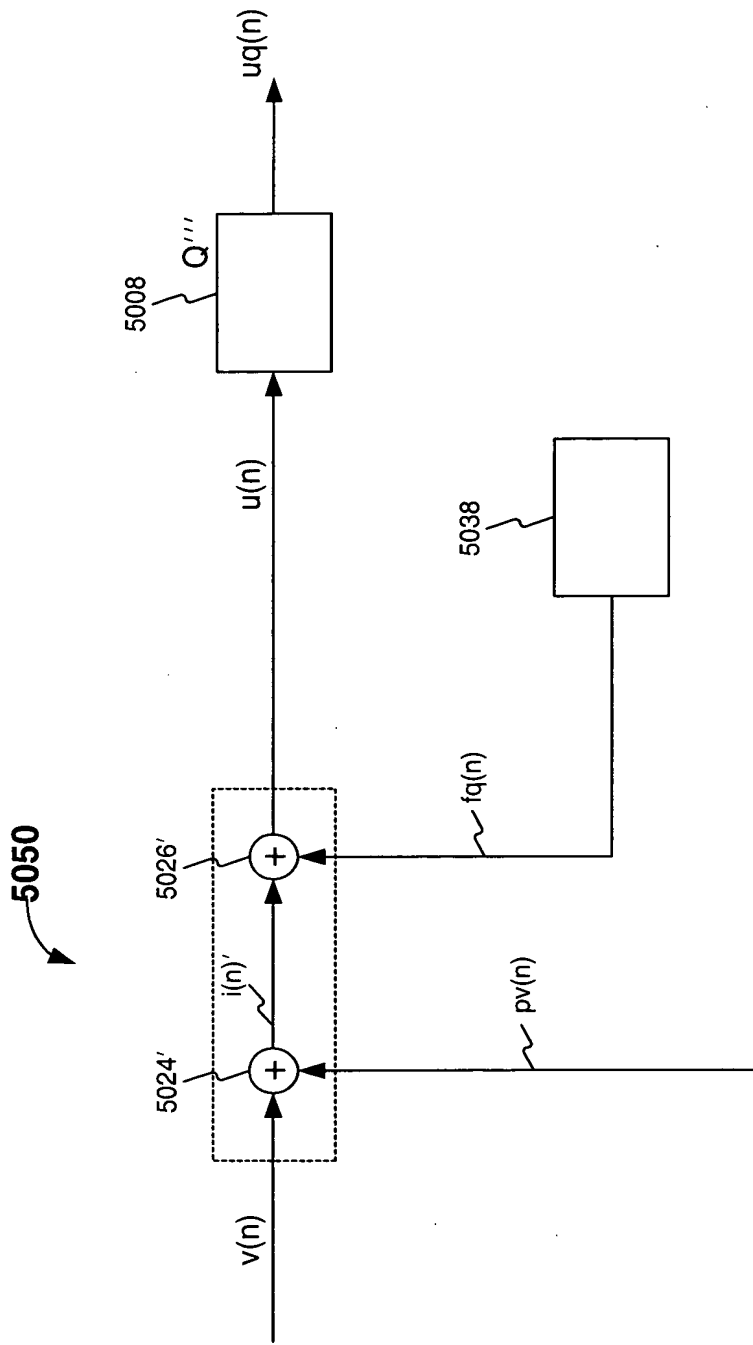


FIG. 5A



6000

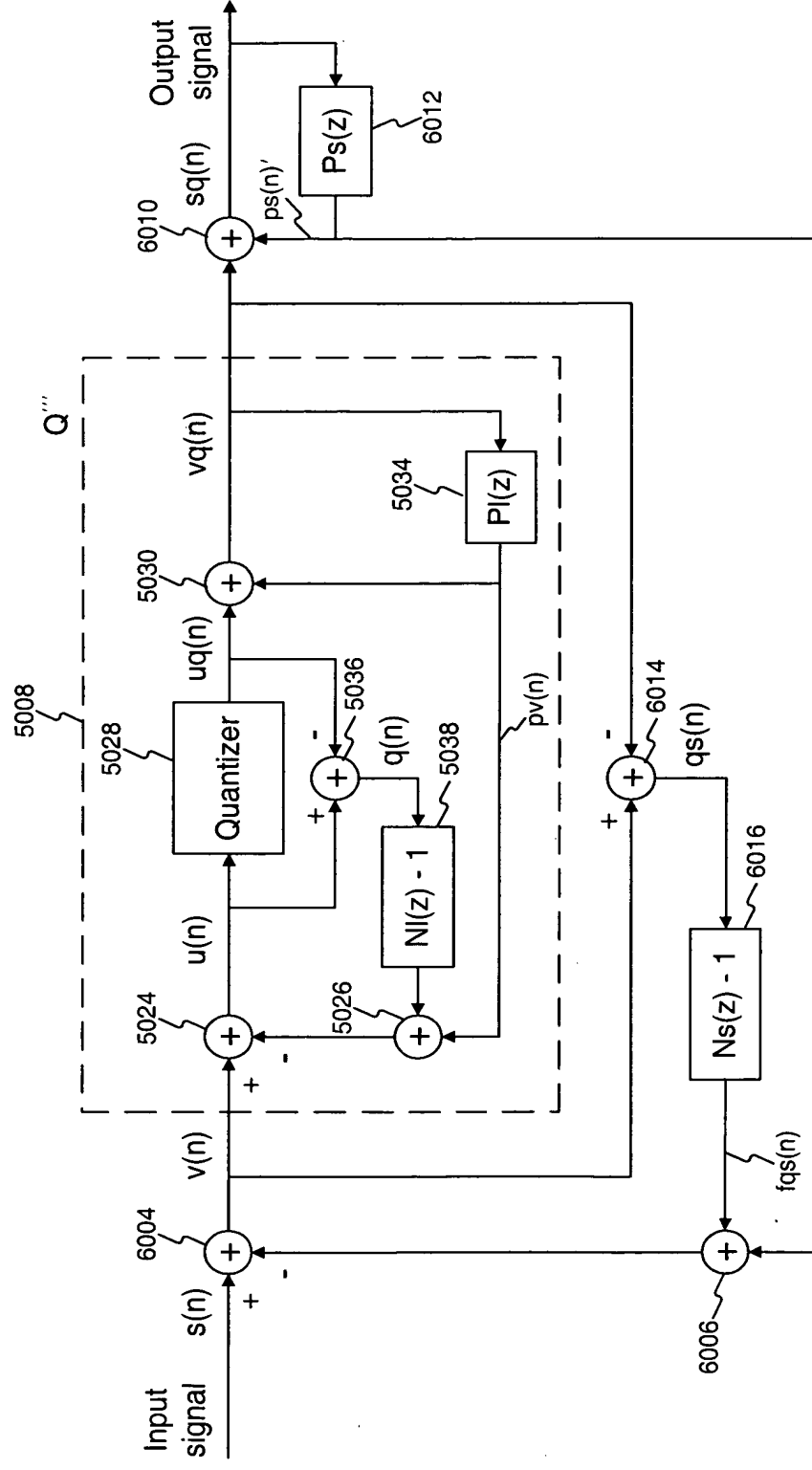
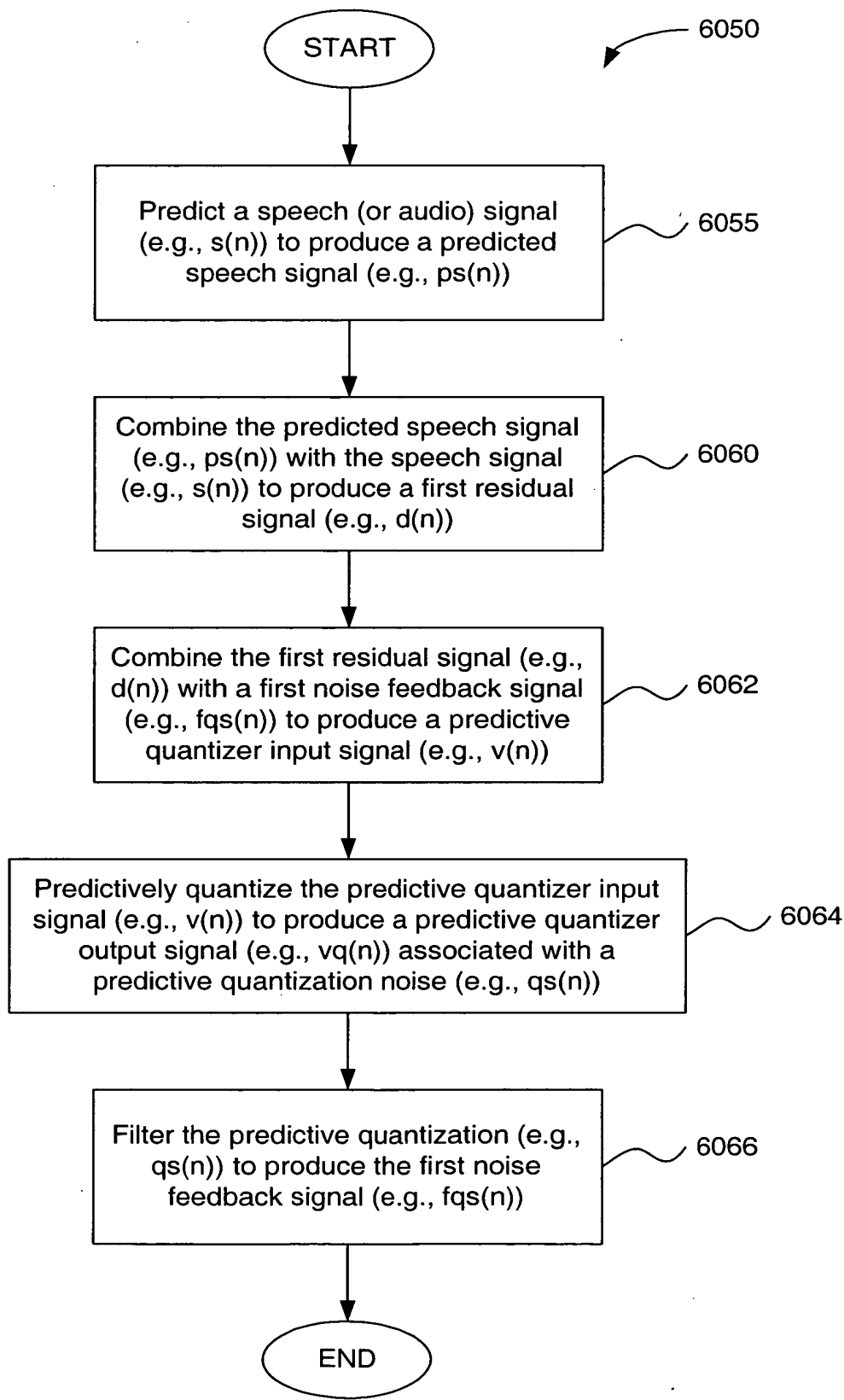
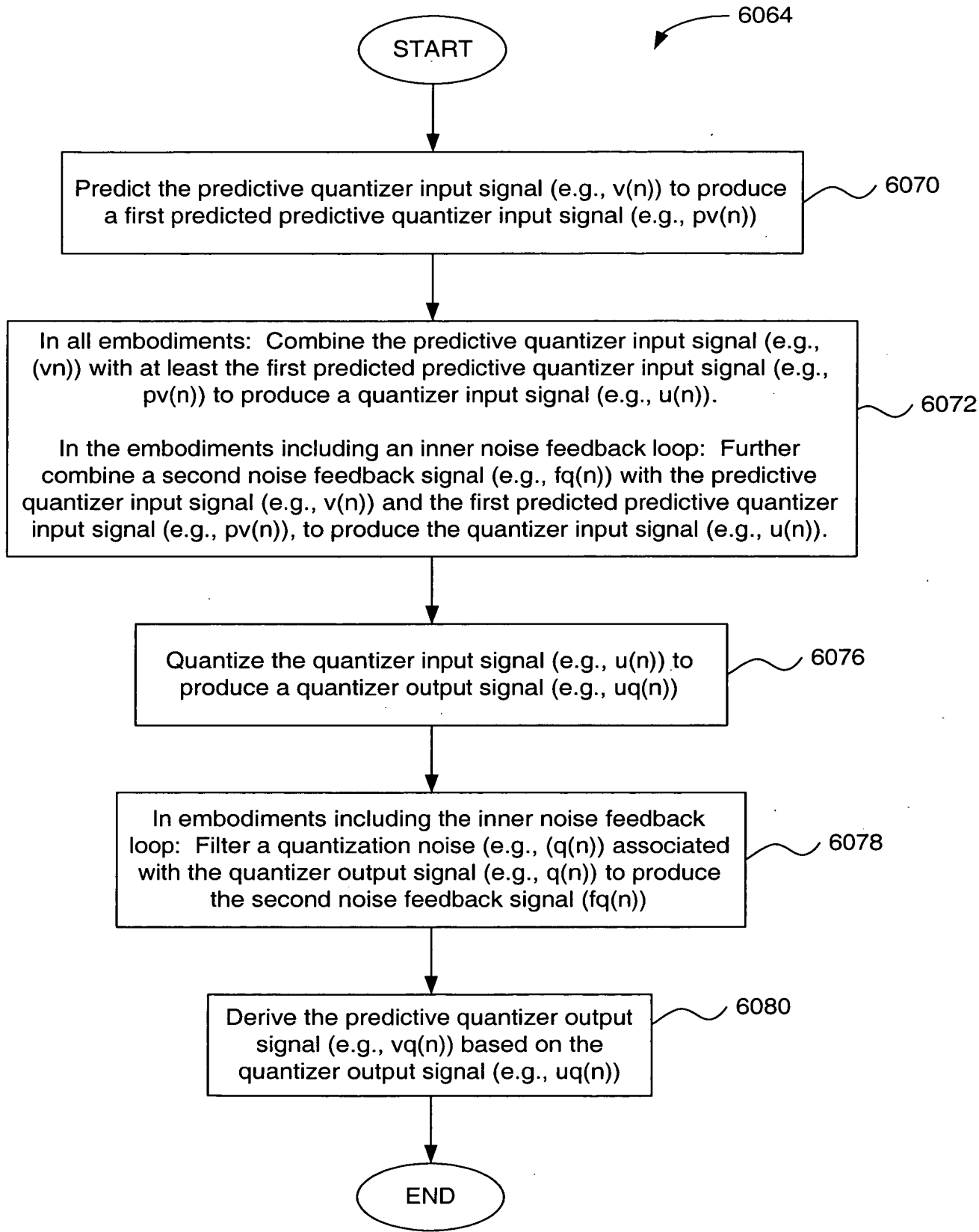


Figure 6 Another alternative nested two-stage Noise Feedback Coding structure with short-term and long-term prediction and short-term and long-term noise spectral shaping



**FIG. 6A**



**FIG. 6B**

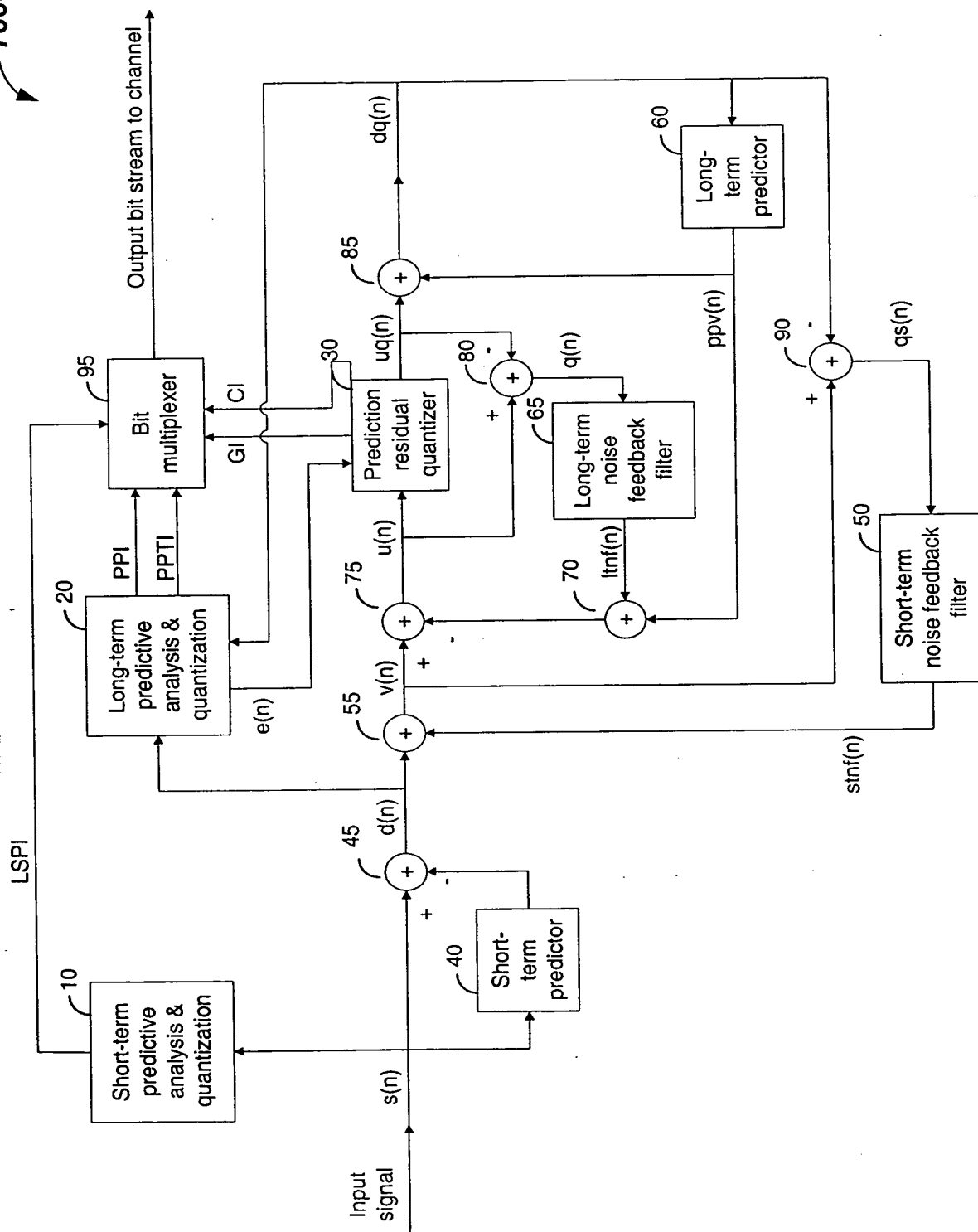


Figure 7 Encoder of a nested two-stage noise feedback codec (TSNFC)

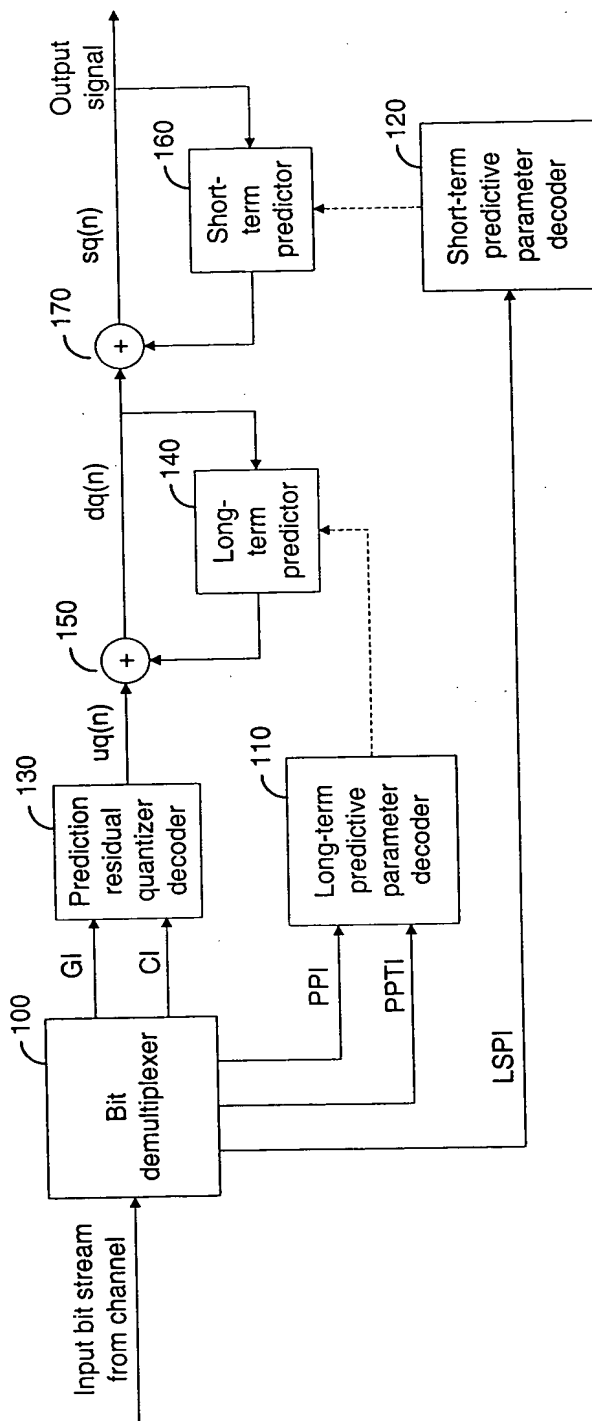


Figure 8 Decoder corresponding to the TSNFC encoder in Fig. 7

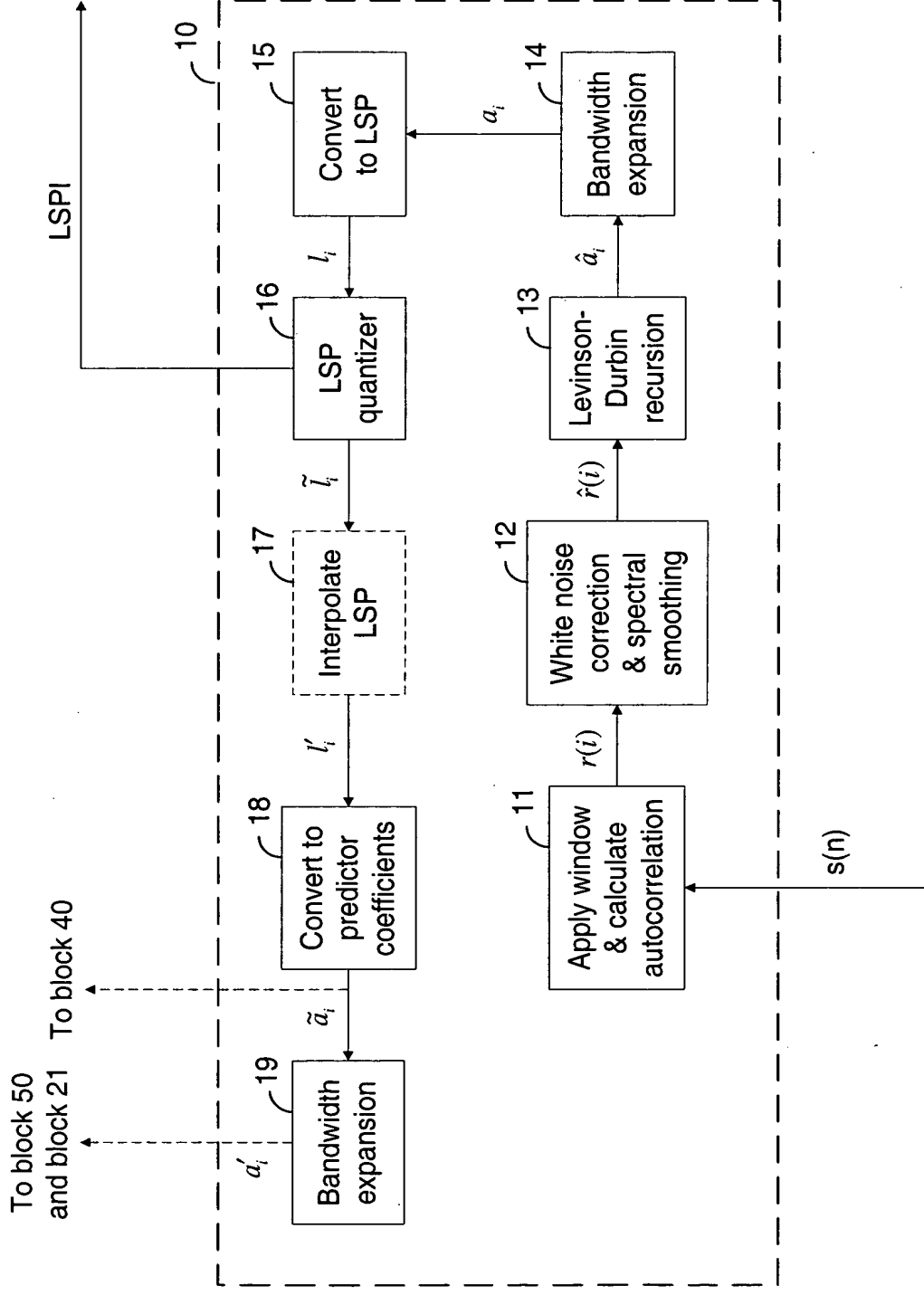


Figure 9 Short-term predictive analysis and quantization (block 10)

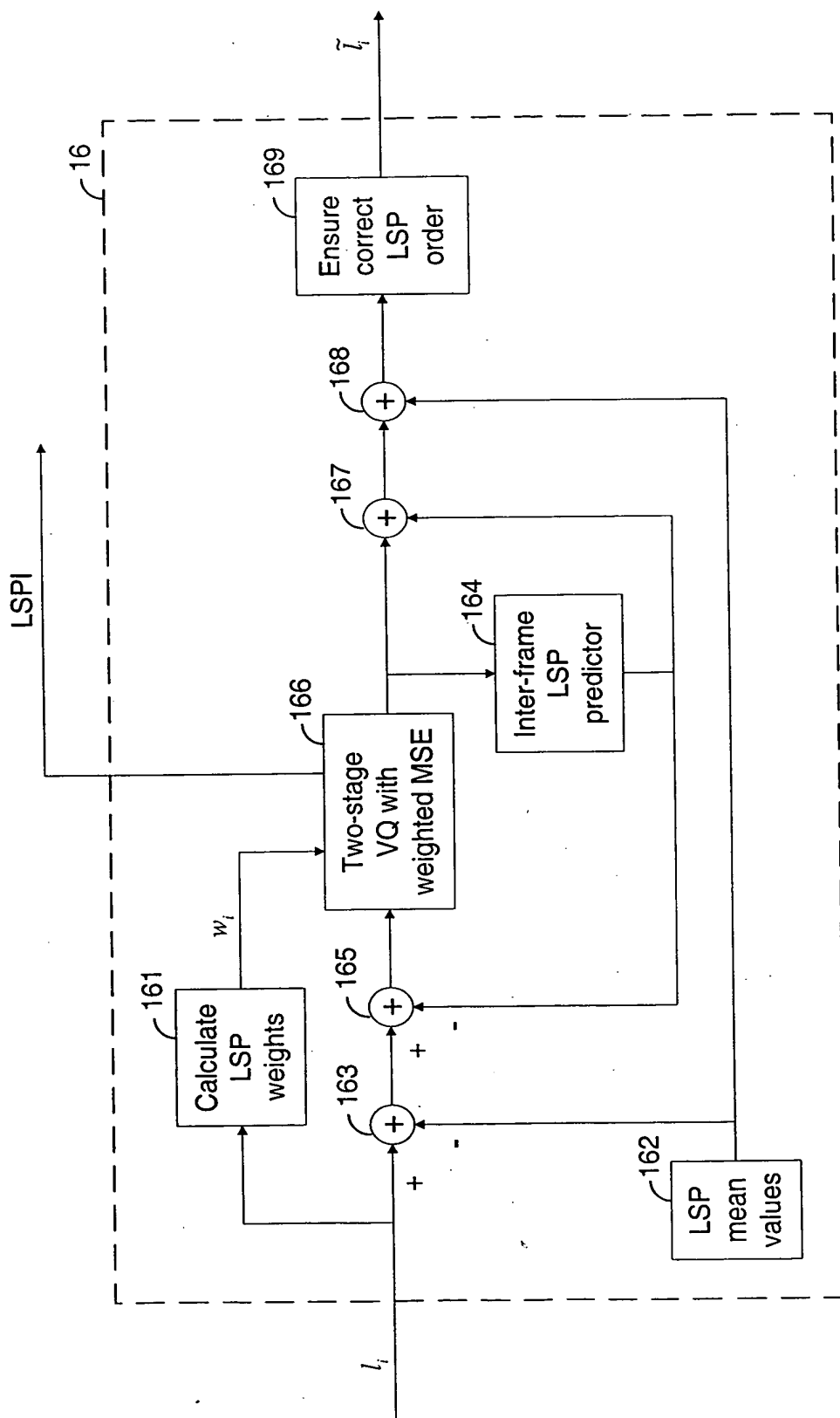


Figure 10 LSP quantizer (block 16)

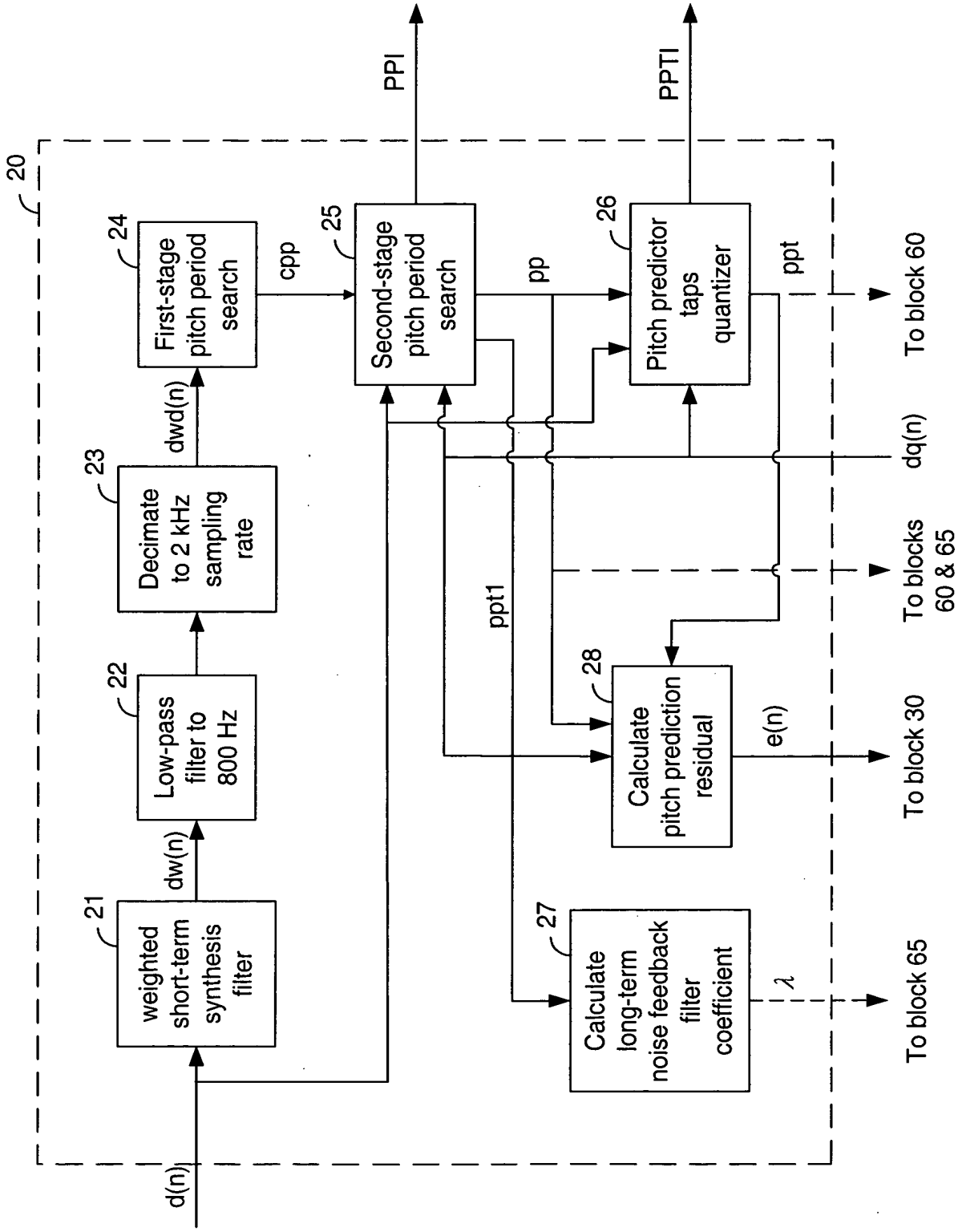


Figure 11 Long-term predictive analysis and quantization (block 20)



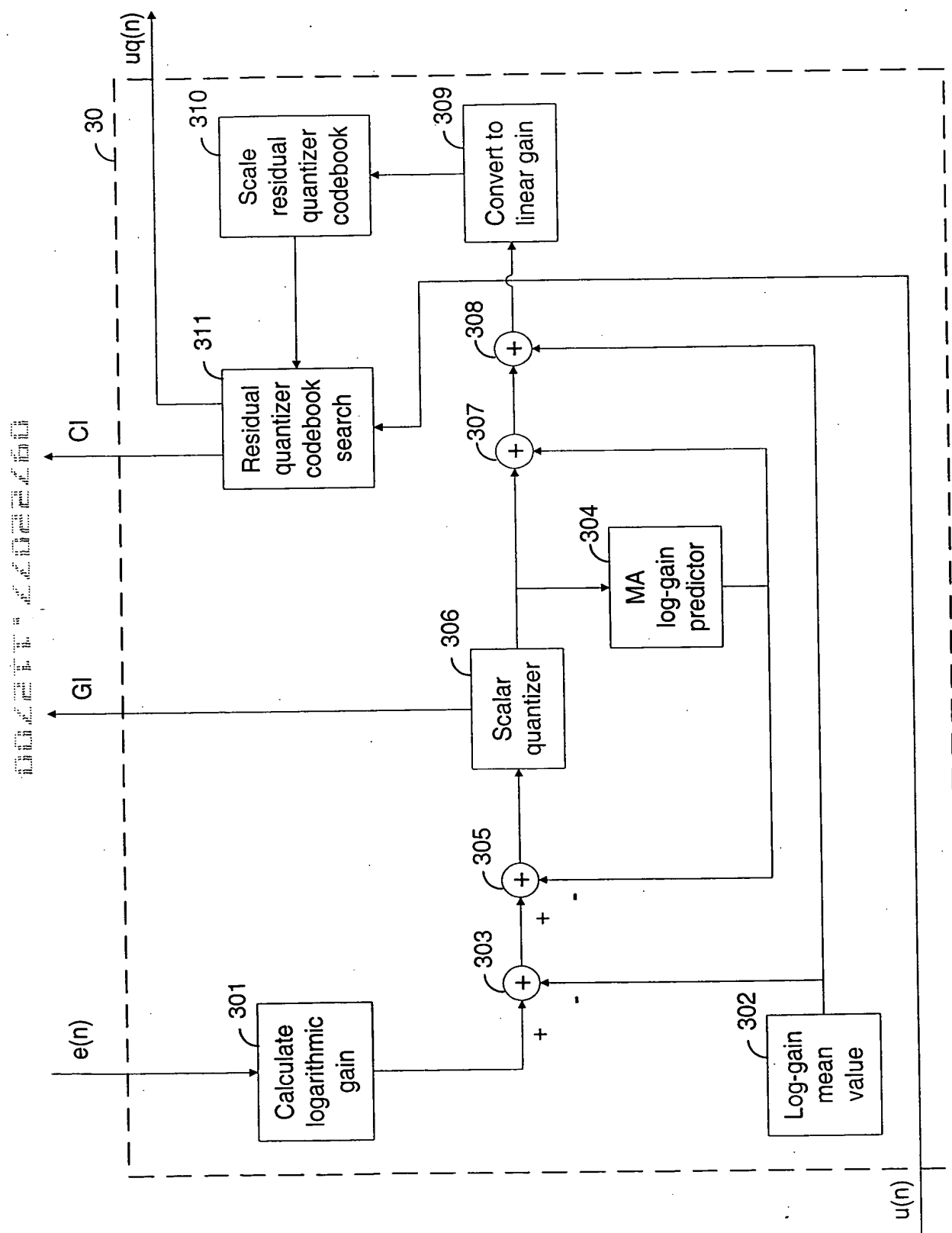


Figure 12 Prediction residual quantizer (block 30)

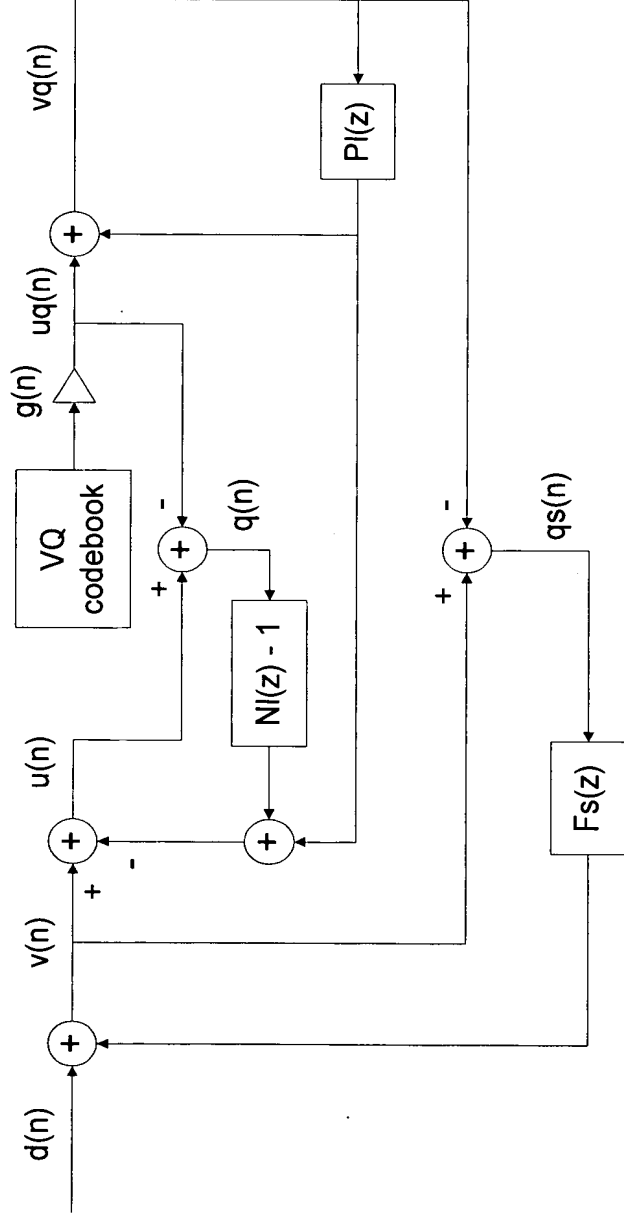


Figure 13 The portion of the codec structure that is used in prediction residual VQ codebook search of the two-stage noise feedback codec of Fig. 5.

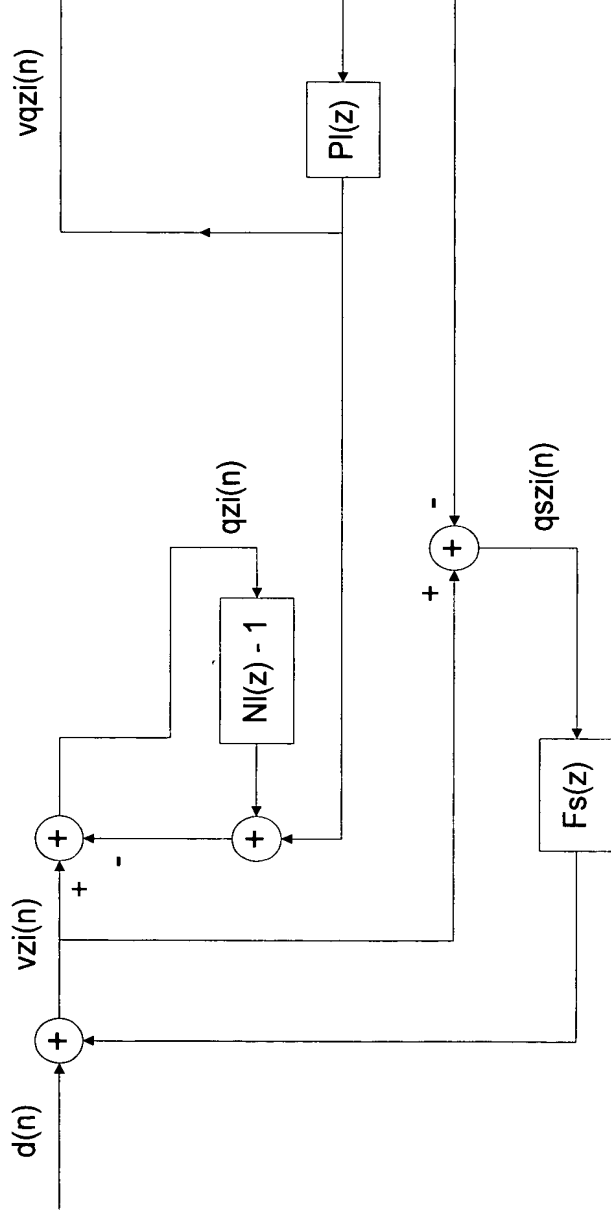


Figure 14 Filter structure during the calculation of the zero-input response of  $q(n)$  of Fig. 13.

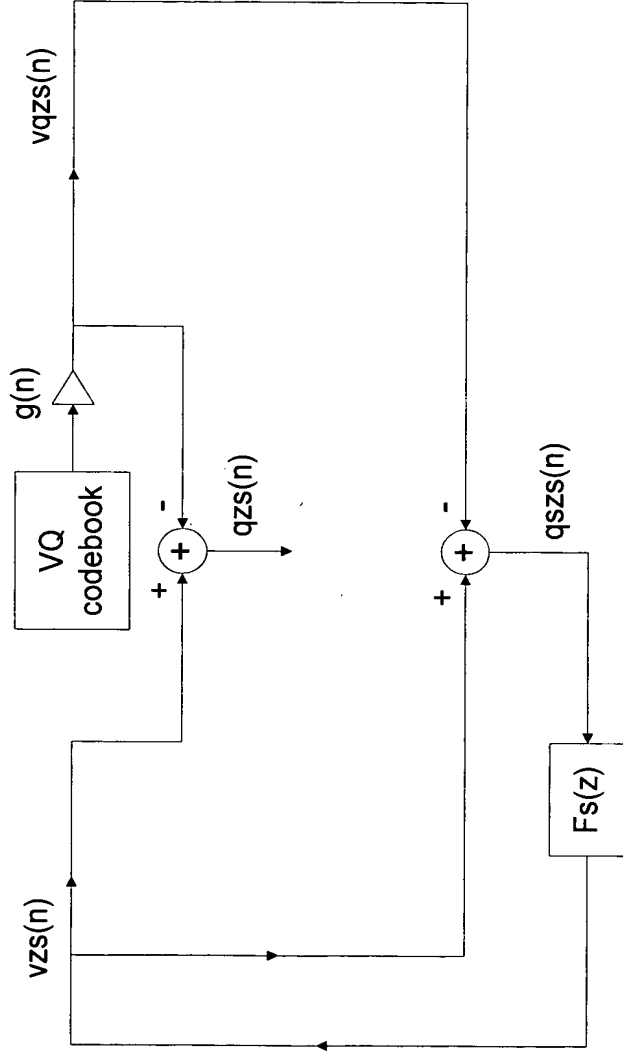


Figure 15 Filter structure during the calculation of the zero-state response of  $q(n)$  in Fig. 13.

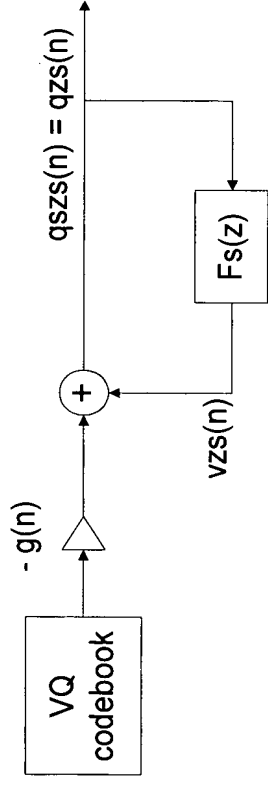


Figure 16 A filter structure equivalent to the structure in Fig. 15.

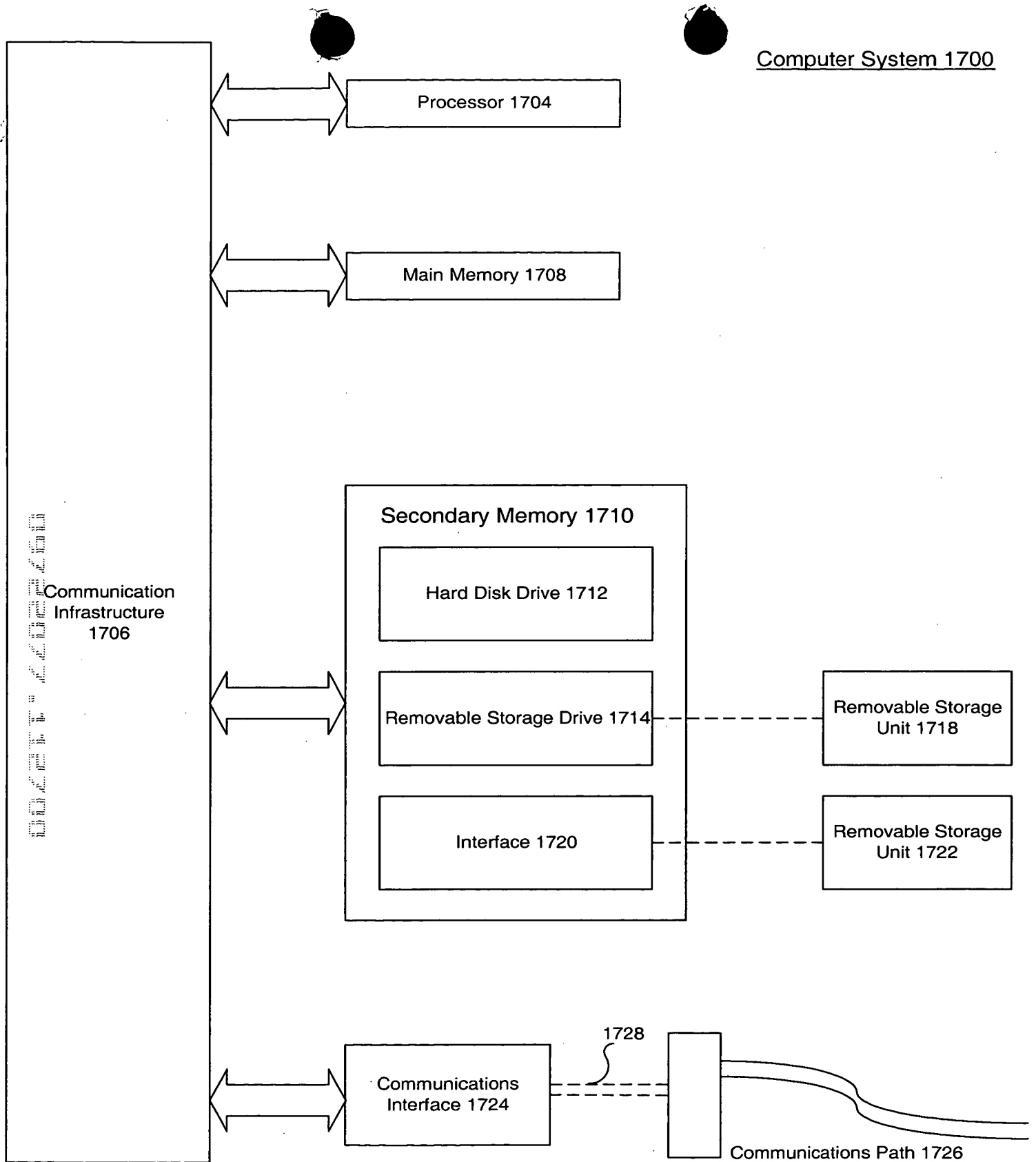


FIG. 17